

In the Claims:

1 1. [Currently Amended] A method for measuring optical density, the
2 method comprising:
3 using electrical circuitry, determining a color on an area;
4 using electrical circuitry, selecting, based on the color, at least a first
5 illumination source one of a plurality of different illumination sources appropriate
6 to determine optical density of the color on the area;
7 illuminating the area with the selected illumination source;
8 receiving radiation from the area responsive to the illuminating; and
9 converting the received radiation to a signal indicative of optical density
10 of the color on the area.

1 2. [Original] A method for measuring optical density according to
2 claim 1, wherein the signal indicative of optical density comprises a standardized
3 signal indicative of standardized optical density.

1 3. [Original] A method for measuring optical density according to
2 claim 2, wherein the converting comprises:
3 selecting a look-up table based on the color on the area, wherein the look-
4 up table associates the received radiation with a standardized signal indicative of
5 standardized optical density.

1 4. [Original] A method for measuring optical density according to
2 claim 2, wherein the selected illumination source provides illumination having a
3 first spectrum and said converting comprises compensating for at least one
4 difference between the first spectrum and a standard spectrum to generate the
5 standardized signal indicative of standardized optical density.

1 5. [Original] A method for measuring optical density according to
2 claim 2, further comprising:
3 generating a look-up table for converting the received radiation to the
4 standardized signal indicative of standardized optical density.

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1 6. [Original] A method for measuring optical density according to
2 claim 1, wherein converting the received radiation to a signal indicative of
3 optical density comprises:

4 compensating for the effects of heating of the selected illumination
5 source during illumination of the area.

1 7. [Original] A method for measuring optical density according to
2 claim 6, wherein the selected illumination source comprises a light emitting
3 diode and the compensating for the effects of heating comprises measuring the
4 voltage across the light emitting diode.

1 8. [Original] A method for measuring optical density according to
2 claim 7, wherein the compensating for the effects of heating further comprises
3 generating a corrected signal indicative of optical density using a non-linear
4 relationship between the voltage across the light emitting diode and the signal
5 indicative of optical density.

1 9. [Currently Amended] A method for calibrating a printing
2 apparatus, the method comprising:

3 printing an area having a color;
4 based on the color, automatically selecting a first one of a plurality of
5 different illumination source sources in a densitometer without user input; and
6 illuminating the area using the selected illumination source; and
7 receiving a signal indicative of optical density in the area from the
8 densitometer after the selecting.

1 10. [Original] A method for calibrating a printing apparatus according
2 to claim 9, wherein:

3 the printing comprises printing a plurality of areas, each having a color;
4 and
5 the receiving comprises receiving a signal indicative of optical density in
6 each of the areas.

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1 11. [Original] A method for calibrating a printing apparatus according
2 to claim 9, wherein the signal indicative of optical density comprises a
3 standardized signal indicative of standardized optical density.

1 12. [Original] A method for calibrating a printing apparatus according
2 to claim 9, further comprising:
3 compensating for the effects of heating of the selected illumination
4 source during illumination of the area.

1 13. [Original] A densitometer comprising:
2 at least a first illumination source to illuminate an area;
3 a sensor for converting radiation received from the area; and
4 a processor coupled to the sensor for converting the received radiation to
5 a standardized signal indicative of standardized optical density.

1 14. [Original] A densitometer according to claim 13, further
2 comprising a plurality of illumination sources.

1 15. [Original] A densitometer according to claim 14, wherein the
2 plurality of illumination sources comprise light emitting diodes.

1 16. [Original] A densitometer according to claim 13, wherein the
2 processor is further configured to compensate for the effects of heating of the
3 illumination source during illumination.

1 17. [Currently Amended] A densitometer according to claim 13,
2 wherein the processor is further configured to determine a color of the area and
3 select [[an]] one of a plurality of different illumination source sources to
4 determine the standardized optical density of the color of the area, and wherein
5 the selection is responsive to the determination of the color.

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1 18. [Original] A densitometer according to claim 13, further
2 comprising a memory coupled to the processor, wherein the memory stores a
3 look-up table for converting the received radiation to the standardized signal
4 indicative of standardized optical density.

1 19. [Original] A densitometer according to claim 13, wherein the first
2 illumination source is selected from a plurality of illumination sources selected
3 from the set consisting of red, green, blue, and orange.

1 20. [Currently Amended] A densitometer according to claim 19,
2 wherein the first illumination source is selected from the plurality of illumination
3 sources based on the source having [(an)] a color that is substantially a color
4 complement to an area of a media to be measured.

1 21. [Original] A densitometer according to claim 13, further
2 comprising a memory for receiving and storing data regarding inks used to print
3 one or more areas to be measured, and means for accessing the stored data to
4 determine the color printed on an area, the data being used to select a spectral
5 wavelength of the at least a first illumination source.

1 22. [Original] A densitometer according to claim 13, wherein the at
2 least a first illumination source to illuminate an area is exactly a single
3 illumination source having a spectral wavelength range narrower than the
4 spectrum of visible white light.

1 23. [Original] A densitometer according to claim 22, wherein the
2 single illumination source having a spectral wavelength range narrower than the
3 spectrum of visible white light comprises a light emitting diode having one of a
4 red, green, blue, orange color spectral output.

1 24. [Original] An article printed using the method of measuring optical
2 density of claim 1.

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1 25. [Currently Amended] A printing apparatus comprising:
2 means for printing at least one ink on an area;
3 a controller coupled to the means for printing; and
4 a densitometer coupled to the controller, the densitometer positioned to
5 illuminate the area and generate a standardized signal indicative of standardized
6 optical density of the area responsive to the illumination.

1 26. [Original] The printing apparatus of claim 25, wherein the
2 densitometer comprises at least one light emitting diode.

1 27. [Original] The printing apparatus of claim 25, wherein the
2 densitometer comprises a sensor positioned to receive radiation from the area.

1 28. [Currently Amended] The printing apparatus of claim 25, wherein
2 the densitometer is configured to determine the color of ink printed on the area
3 and to select at least one of a plurality of different illumination sources for the
4 illumination and corresponding to the determination of the color of ink.

1 29. [Original] A printing media printed with the printing apparatus of
2 claim 25.

1 30. [New] A method for measuring optical density according to claim
2 1, wherein the determining comprises using data regarding a marking agent used
3 to print the color on the area.

1 31. [New] A method for measuring optical density according to claim
2 30, wherein image data is used to print the color on the area, and wherein the
3 data regarding the marking agent is accessed from the image data.

1 32. [New] A method for measuring optical density according to claim
2 30, wherein the data is provided before the determining.

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1 33. [New] A method for measuring optical density according to claim
2 30, wherein the data is provided during the printing of the marking agent on the
3 area and the data indicates the color of the marking agent used to print the color
4 on the area.

1 34. [New] A method for measuring optical density according to claim
2 30, further comprising accessing the data from storage circuitry.

1 35. [New] A method for measuring optical density according to claim
2 1, wherein the determining comprises determining without sensing of the area.

1 36. [New] A method for measuring optical density according to claim
2 1, wherein the determining comprises determining before completion of printing
3 of the color on the area.

1 37. [New] A method for calibrating a printing apparatus according to
2 claim 9, wherein the printing comprises providing data regarding a color of a
3 marking agent used for the printing, and wherein the automatically selecting
4 comprises selecting using the data.

1 38. [New] A densitometer according to claim 13, wherein the
2 standardized optical density provides optical density information in accordance
3 with a standard predefined before the conversion of the received radiation to the
4 standardized signal.

1 39. [New] A densitometer according to claim 38, wherein the
2 processor is configured to convert the received radiation to a signal indicative of
3 optical density and to convert the signal indicative of optical density to the
4 standardized signal indicative of standardized optical density.

1 40. [New] A densitometer according to claim 17, wherein the
2 processor is configured to select the one illumination source using data
3 generated during printing of a marking agent on the area.

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1 41. [New] The printing apparatus of claim 25, wherein the means for
2 printing comprises means for providing data regarding the at least one ink, and
3 one of a plurality of different illuminant sources of the densitometer is selected
4 for the illumination using the data regarding the at least one ink.

1 42. [New] The printing apparatus of claim 41, wherein the data is
2 provided before completion of the printing of the at least one ink on the area.

1 43. [New] The printing apparatus of claim 25, wherein the
2 standardized optical density provides optical density information according to a
3 standard predefined before the illumination of the area.

1 44. [New] The printing apparatus of claim 43, wherein the
2 densitometer is configured to convert a signal indicative of optical density to the
3 standardized signal indicative of standardized optical density.

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